ABSTRACT OF THE DISCLOSURE

Disclosed is a facing-targets-type sputtering apparatus and method capable of forming a metal film under the conditions of low gas pressure and low discharge voltage. An opening is formed in each of two facing side faces of a vacuum chamber vessel or in each of two facing side faces of a box-type discharge unit attached to an opening portion of a vacuum chamber vessel. The two openings are covered by a pair of cooling blocks. Each cooling block holds a target facing a discharge space. Magnetic field generation means is disposed so as to surround each target and operative to generate a magnetic field that surrounds a discharge space provided between the paired targets. Electron reflection means is disposed above the exposed surface of each target along the periphery of the target. A DC power and a high-frequency power are applied between the vacuum chamber vessel and the targets.